farmer who had taken it from a field where cattle had died with symptoms of poisoning. The similarity of these sclerotia to the common ergot gave further indication of its probable poisonous character and a quantity of the diseased grains was collected for testing, but no animals were available at the time and learning from Professor P. H. Rolfs that he was working on the life history of the fungus (as recorded by Stevens and Hall when they published descriptions of the two *Paspalum* ergots in the *Botanical Gazette* in 1910) the matter was dropped. There was, however, a short note on these observations published in my report on plant diseases in Maryland in 1902, in the Maryland Horticultural Society Report for 1902, as follows: "A fungus disease causing the seeds of a wild grass (*Paspalum lævе*) to expand and break open like popcorn has been abundant and has been suspected of being poisonous to cattle."

Since then a few cases of stock disease, sometimes confused with the well-known but yet little understood "horse disease," have occurred in Maryland, where the *Paspalum* ergot was abundant enough to be suspected and, judging from the experimental results so well worked out in Mississippi, was without much doubt the cause of the trouble.

The *Claviceps* sclerotia which replace the *Paspalum* grains are frequent in Maryland nearly every year, though in some years almost absent and sometimes, as in 1915, unusually abundant.

J. B. S. NORTON
AGRICULTURAL EXPERIMENT STATION,
COLLEGE PARK, MD.

NAMES OF CELESTIAL ELEMENTS

I WISH to learn the name of the giver and first place of publication of the following: Neptunium of Mendeléef, cited by Biclok and Martin; Coronium (the same as Mendeléef's "x"), said to be by Huggins; Helium, Aurorium and Nebulum (or Nebulium), the last two cited by Crookes, presidential address Brit. Ass. 1898. Any one who can give me any one of the citations will confer a favor upon the subscriber.

B. K. EMERSON
AMHERST, MASS

QUOTATIONS

ENGINEERING EXPERIMENT STATIONS IN THE LAND GRANT COLLEGES

ON July 2, 1862, President Lincoln approved the act establishing the Land Grant Colleges of Agriculture and the Mechanic Arts, and on March 3, 1863, he approved the act incorporating the National Academy of Sciences. When the nation was stricken down with civil war it sought relief in science, on the one hand, establishing institutions for the scientific education of all the people in the arts of peace, on the other hand, recognizing exceptional merit in science and making the most distinguished men of the country the advisers of the government.

Now when the world is again infected by war more terrible than can be imagined in this one great nation which has escaped, we are naturally driven to think of "preparedness," and it will be well if this movement can be directed to making the nation strong through education and scientific research. At least three bills are before the Congress which are more important for the welfare of the country and its defense from foreign aggression, should that ever become necessary, than any enlargement of the army and navy. These bills would establish a national university, extend secondary education in industry and agriculture, and establish research stations for engineering at the college of agriculture and mechanic arts.

A national university at Washington, holding the same position toward the state and privately endowed universities as these hold or should hold to the colleges and schools of each state, would correspond with the establishment of the National Academy of Sciences during the civil war, but could be made far more effective in its influence on research and on the efficient conduct of the departments of the government.

The Smith-Hughes bill provides for the promotion of the vocational education of boys and girls of high-school age through cooperation of the nation and the states. There is appropriated for the first year $1,700,000 with an increment each year for eight years on condition that each cooperating state shall appro-

priate an equal sum. In the first year the sum of $200,000 is for administration and investigation, $500,000 for training teachers for vocational work, and $1,000,000 for payment of teachers, equally divided between agriculture, on the one side, and trade, home economics and industry, on the other.

Of special interest to scientific men is the Newlands bill establishing research stations in engineering, corresponding to the existing agricultural stations in the colleges of agriculture and the mechanic arts. These land grant colleges and their agricultural research stations have been of incalculable value to education, to agriculture, to the states and to the nation. They have been largely responsible for the establishment and development of the state universities. The land grant colleges and the institutions of which they are a part received in 1914 from the United States $2,500,000; from the states and from other sources over $30,000,000. They have 9,000 instructors and 105,000 students.

By the Hatch act of 1887 and the Adams act of 1906 the sum of $30,000 a year is appropriated for research in agriculture in the experiment stations. The colleges have more students of mechanic arts than of agriculture, but there is no similar provision for research in the mechanic arts and engineering, and the sciences, such as physics and chemistry, on which they are based. The agricultural interests have always had great influence on legislation and in this case they have led the way. It is to be hoped that research in the engineering sciences will now be equally encouraged by the passage of the Newlands bill, which appropriate $15,000 to each state and territory for conducting investigations in engineering and publishing the results.

Some scientific men may believe that more could be accomplished by the establishment of one great research laboratory or by granting the money only to institutions already distinguished for their contributions to science. There is, however, much to be said for initiating investigation in fifty widely scattered centers where work is already being done in agricultural science. It brings the value of research to the attention of the students of the college and the people of the state, and each station has the possibility of great development. In any case the passage of the bill as it stands is the most feasible method at present to extend research and will forward rather than interfere with other methods.—*The Scientific Monthly.*

SCIENTIFIC BOOKS

The Mathematical Theory of Probabilities. By Arne Fisher, F.S.S. Translated and edited from the author's original Danish notes with the assistance of William Bonynge, B.A., with an introductory note by F. W. Frankland, F.I.A., F.A.S., F.S.S. New York, The Macmillan Company. Vol. I. Pp. ix + 171.

Although a considerable number of standard text-books on probability have appeared in recent years in foreign languages, there is a lack of such books in the English language. Both on this account and because of the selection of subject-matter, the present book should be particularly useful. Research work in the theory of probability has received during the past twenty years a new impetus, through the labors of certain mathematical statisticians. In this connection, we may perhaps mention particularly the work of Pearson in England, Lexis in Germany, Westergaard in Denmark. Each group of investigators seems to have moved along its particular line. In the present work an attempt is made to treat these researches from a common point of view based on the mathematical principles grounded in the work of Laplace, "Theorie analytique des Probabilites."

The introductory chapter consists of a brief discussion of the general principles and philosophical aspects of a theory of probability. Here, in the determination of what events are to be regarded as "equally likely," both the principle of "insufficient reason" and the principle of "cogent reason" are illustrated, and the inference is drawn that a compromise of the two principles gives us a valuable meaning of "equally likely." Then follow some interesting historical and biographical notes.